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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/576,468	04/20/2006	Katsumi Yabusaki	287117US0PCT	7180
22850 7590 06/30/2008 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER MAIER, LEIGH C				
ART UNIT 1623		PAPER NUMBER		
NOTIFICATION DATE 06/30/2008		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/576,468

Applicant(s)

YABUSAKI, KATSUMI

Examiner

Leigh C. Maier

Art Unit

1623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Status of Prosecution

In view of the appeal brief filed on April 17, 2008, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

/Shaojia Anna Jiang, Ph.D./

Supervisory Patent Examiner, Art Unit 1623

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4, 9-12, 15 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Zeronian et al (J. Appl. Polym. Sci., 1980).

Zeronian discloses the preparation of cellulose II phosphate. The cellulose starting material is treated with NaOH, or mercerized, thereby transforming the cellulose I to cellulose II. The mercerized cellulose is then treated with phosphorus oxychloride (a phosphorus oxide) to obtain the final product having a phosphorus content of 9.5%. See “Methods of Treatment” section at page 520 and page 522, 1st full paragraph and Table I. The “metal-adsorbing system” recited in claim 4 appears to require nothing other than the cellulose phosphate, per se.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 and 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over de Magalhaes Padilha et al (Talanta, 1997) in view of Ford et al (US 2,482,755) and Zeronian et al (J. Appl. Polym. Sci., 1980).

de Magalhaes Padilha teaches the use of cellulose phosphate in chromatographic columns for the adsorption of metal ions from aqueous solutions. See abstract, for example. The reference cites the method of Ford in preparing the cellulose phosphate. (The Ford reference cited in this action appears to be the one cited in de Magalhaes Padilha, but the patent number is truncated.) The cited method treats a cellulose substrate with a phosphoric acid in the presence of urea. See examples. The method does not exemplify a cellulose II product. However, the reference expressly suggests the use of cellulose substrates previously subjected to other processing, such as mercerization. See col 9, lines 46-50.

Zeronian teaches as set forth above. The reference further teaches that mercerization prior to phosphorylation has the beneficial effect of making the cellulose more receptive to the phosphorylating reagents and resulting in a more uniformly phosphorylated product. See page 522, lines 1-3 and paragraph bridging pages 527 and 528.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the metal-adsorbing system of de Magalhaes Padilha by modifying the method of preparing the cellulose phosphate used in said system. The artisan would be motivated to pretreat the cellulose starting material by mercerizing it as suggested by Zeronian in order to make the cellulose more receptive to the phosphorylating reagents and a more uniformly phosphorylated product. One of ordinary skill would reasonably expect success in making this modification. It would be further within the scope of the artisan to optimize the degree of phosphorylation for metal adsorption through routine experimentation.

Claims 1-4, 6, 7 and 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reineke et al (US 4,851,120) in view of Zeronian et al (J. Appl. Polym. Sci., 1980).

Reineke teaches that anionic polysaccharides, particularly cellulose derivatives, such as cellulose phosphate, in the form of membranes (or “fabric”) have utility for the adsorption of metal ions. See col 2, lines 20-26 and col 3, lines 36-55. The reference suggests the preparation of cellulose phosphate by reacting cellulose with phosphoric acid and urea. See col 3, lines 13-17. The reference further teaches that the membranes may be formed into any desirable shape such as convex, concave or tubular. See col 4, lines 48-55. The reference does not teach the use of a cellulose II phosphate.

Zeronian teaches as set forth above.

It would have been obvious to one having ordinary skill in the art at the time the invention to prepare metal-adsorbing membrane comprising cellulose phosphate by preparing said cellulose phosphate by reacting cellulose with phosphoric acid and urea, as suggested, with the modification of mercerization pretreatment taught by Zeronian. The artisan would be motivated to make said modification in order to make the cellulose more receptive to the phosphorylating reagents and a more uniformly phosphorylated product. One of ordinary skill would reasonably expect success in making this modification. It would be further within the scope of the artisan to optimize the degree of phosphorylation for metal adsorption through routine experimentation. With respect to claims 6 and 7, the references do not specifically teach the use of the product in the form bag or a cylinder or fabric inside a water storage tank. However, it is noted that a bag could be construed essentially as any non-flat membrane, as suggested by the reference. The reference expressly suggests the treatment of water, so it would

be obvious to one of ordinary skill to use the product in an appropriate form in any apparatus where water is processed or stored.

Claims 1, 2, 4, 8-12 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bernadin (US 3,691,154) in view of Zeronian et al (J. Appl. Polym. Sci., 1980).

Bernadin teaches the preparation of cellulose phosphate using the urea phosphate method, followed by the conversion to an alkali metal salt. See col 2, lines 15-64. The reference does not teach a cellulose II phosphate.

Zeronian teaches as set forth above.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to prepare the cellulose phosphate by preparing said cellulose phosphate product by the urea phosphate method, as suggested, with the modification of mercerization pretreatment taught by Zeronian. The artisan would be motivated to make said modification in order to make the cellulose more receptive to the phosphorylating reagents and a more uniformly phosphorylated product. One of ordinary skill would reasonably expect success in making this modification. It would be further within the scope of the artisan to optimize the degree of phosphorylation for metal adsorption through routine experimentation.

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Examiner's hours, phone & fax numbers

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leigh Maier whose telephone number is (571) 272-0656. The examiner can normally be reached on Tuesday, Wednesday, and Friday 7:00 to 3:30 (ET).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Anna Jiang (571) 272-0627, may be contacted. The fax number for Group 1600, Art Unit 1623 is (571) 273-8300.

Visit the U.S. PTO's site on the World Wide Web at <http://www.uspto.gov>. This site contains lots of valuable information including the latest PTO fees, downloadable forms, basic search capabilities and much more. Information regarding the status of an application may be obtained from the Patent Application Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished application is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197.

/Leigh C. Maier/

Primary Examiner, Art Unit 1623

June 19, 2008